

LITORIA REVELATA: A NEW SPECIES OF TREE-FROG  
FROM EASTERN AUSTRALIA

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ABSTRACT

*Litoria revelata* sp. nov. is a member of the *L. ewingii* complex. It is most similar to *L. jervisiensis* but *L. revelata* can be distinguished readily by black spotting in the groin and by the breeding call which has a dominant frequency of around 4kHz.

INTRODUCTION

The existence of the tree-frog described in this paper has been known for nearly twenty years. Straughan (1966) in his unpublished thesis noted its undescribed status, its membership of the *L. ewingii* complex, and its reproductive isolation from *Litoria verreauxii*. The description of this new species was delayed for two reasons. Firstly, the nomenclature and status of closely related species in mid-eastern New South Wales had not been resolved. This has been rectified recently (White, Whitford, and Watson 1980). Secondly, the status of *L. ewingii*-like specimens from northeastern and mid-eastern Queensland (Moore 1961) also had to be resolved. Recently, we located the northern populations of this frog and recorded their choruses.

Measurements are in millimetres and ratios are expressed as percentages. Specimens housed in the Queensland Museum, Australian Museum, National Museum of Victoria, and British Museum of Natural History are prefixed by J, R, D, and BMNH respectively. Abbreviations follow Liem and Ingram (1977).

*LITORIA REVELATA* sp. nov.

HOLOTYPE: J28233; ♂, O'Reillys (28° 14'S, 153° 08'E), Lamington Plateau, SE. Queensland collected by G.J. Ingram on 6 August, 1973.

PARATYPES: NE. Queensland: Millaa Millaa Lookout (J30116); Millaa Millaa Falls

(J30120-1); Lamin's Hill, west side of Mt Bartle Frere (J30137); Sluice Creek Road (J30117-9, 30122-35, 30138-59, D55546, 55568, R99993); Ravenshoe (J13156).

ME. Queensland: Thurgood's Farm 18 km. N. of Dalrymple Heights (J35087, 35105-6, 35115-6); Port Denison (BMNH 64.7.8.11-12).

SE. Queensland: Mt Tamborine (J12853, 19869, 19872, 19910); Lost World (J10896); Springbrook (J19867-8, 19887, 19889-90, 19892-4, 19898, 19909); O'Reillys (J19873, 19900, 19911-2, 19915, 19918, 28233, R99994, D55547); Wilson's Peak (J28232); Lever's Plateau (J31971).

NE. New South Wales: Ballina (J31465, 31467-8, 35543); Tooloom Range (J35539).

DIAGNOSIS: A member of the *L. ewingii* group (*sensu* Tyler and Davies, 1978) but distinguished from other members by a combination of prominent terminal discs much wider than the digits, and the presence of black spots in the inguinal regions. The breeding call is also diagnostic in having the dominant frequency around 4kHz.

DISTRIBUTION: Northeastern Queensland to northeastern New South Wales (Fig. 1). There are three disjunct populations. These are on the Atherton Tableland and Bellenden-Ker Range, NE.Qd, Eungella Plateau, ME.Qd, and the extreme corner of SE.Qd-NE.NSW on the Great

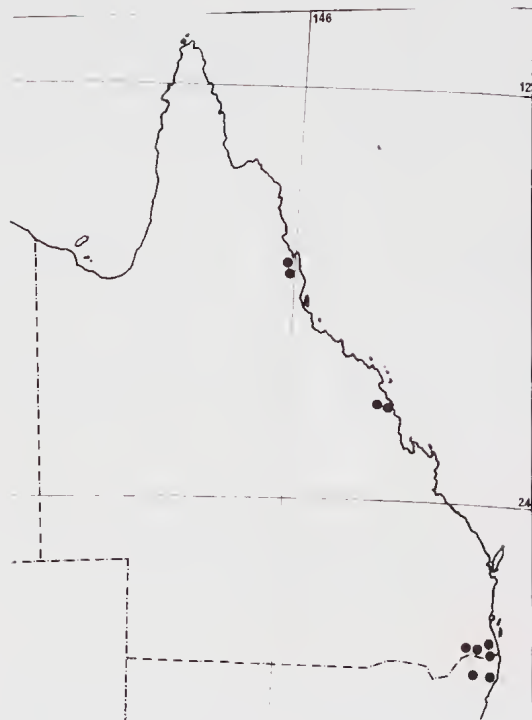


FIG. 1. Distribution of *Litoria revelata*.

Divide, Macpherson Range, Tamborine Mountain, Tooloom Range and coastal swamps around Ballina. In addition to specimen records, there are two recordings of choruses from inside the Crater, Crater National Park (G. Czechura and G. Ingram, pers.comm.).

**DESCRIPTION:** SVL 16–36 (N = 79, mean 27.1). HW/SVL 30–37 (N = 75, mean 32.2). TL/SVL 46–59 (N = 75, mean 53). SE/SVL 27–38 (N = 75, mean 32). IN 9–19 (N = 71, mean 13.8). EN 9–20 (N = 72, mean 14.7). IN/EN 75–121 (N = 71, mean 96.7). TW 5–13 (N = 73, mean 9.6). ED/TW 158–280 (N = 73, mean 203).

Dorsal aspect of snout blunt, rounded in profile. Loreal region sloping. Canthus rostralis distinct and concave. Pupil horizontal and oval shaped. Supratympanic fold present. Tympanum exposed. Tongue oval, hinged in front. Vomerine teeth in two separate rows in line with posterior edge of choanae.

Fingers webbed basally, distal segments expanded into discs; discs much wider than ends of digits. Length of fingers from shortest to longest 1–2–4–3. Subarticular tubercles present, single. Palmar tubercles usually present, variable in number.

Hindlimbs long. Distal segments of toes expanded into discs; discs much wider than ends of digits. Length of toes from shortest to longest 1–2–3–5–4. Subarticular tubercles present. Toes moderately webbed; webbing formula (see Schiøtz 1967) 1–1, III–1, IIo–½, IIIi–2, IIIo–1, IVi–½.

Dorsal surface smooth except for a transverse row of raised tubercles (usually 4) between eyes; colour varies from creamy brown to reddish brown; a dark lyre-shaped pattern (typical of the *L. ewingii* complex) can be present. Ventrally cream, usually with brown flecking.

Laterally, a thick dark line begins at tip of snout and continues back to eye, recommences behind eye, continues through and encompasses the tympanum and terminates above arm; an upper labial streak begins at snout, becomes thicker under eye and continues back to subaural gland. Groin usually with 1–3 black spots. Posterior surface of thighs cream (orange in life) lined with varying amounts of black.

**CALL:** To the ear, the male breeding call of *L. revelata* sounds like a series of high pitched whirrings.

A sound spectrograph of this call is given in Figure 2. This is based on recordings by Chris Corben at O'Reillys, Lamington Plateau, SE Queensland on 5 October, 1977. Dominant frequency is around 4.1 kHz, note duration is approximately 0.18 seconds and note repetition rate is about 4 Hz. Each note consists of between 15 and 18 pulses (mean 16.4) at a pulse repetition rate of about 87 Hz. Call duration is 2 to 10 seconds consisting of 8 to 40 notes. A breeding call from the Atherton Tableland is similar in structure but is slightly higher pitched (average dominant frequency 4.3 kHz) and the pulse rate is about 1.4 times faster. The average number of pulses per note is 17.1 (range 16–19). These values fall within the range of data for SE Queensland (Straughan 1966). Calls from the Eungella Plateau sound similar to both those from NE Queensland and SE Queensland–NE New South Wales.

#### REMARKS

*L. revelata* breeds in still ponds and swamps. The males call from reeds and grasses around or in the water. Amplexus is axillary. In the mountains of SE Queensland–NE New South Wales it overlaps and even breeds in the same ponds as *L. verreauxii*. In Queensland *L. revelata* is a montane frog but in New South Wales it also occurs around coastal swamps and ponds near

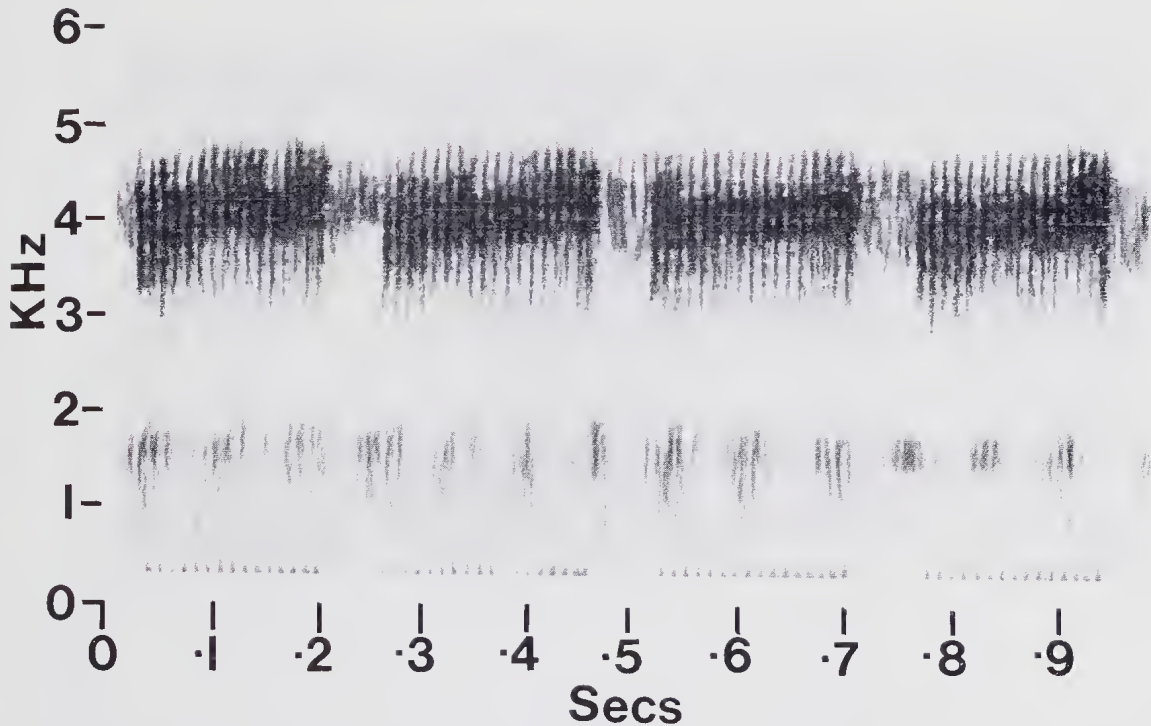


FIG. 2. Sonograph of the call of *Litoria revelata*.

Ballina. *L. jervisiensis* also has been recorded from the Ballina area (White et al 1980) and it is possible that the two may be found to overlap. Although *L. revelata* more closely resembles *L. jervisiensis* than other species of the *L. ewingii* group, the great differences in breeding call can be expected to act as an effective premating isolating mechanism.

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